3.2 STRUCTURAL SYSTEM

3.2.1 PURPOSE. The purpose of the structural system is to provide a lightweight structural arrangement with an aerodynamic shape consistent with the overall design of the vehicle, and to contain propellants (liquid hydrogen and liquid oxygen) in sufficient quantities to meet the mission requirements. In addition, it supports and protects the payload and the vehicle systems, subsystems, and components from adverse environments. The structural system provides structural adaptation between the Centaur second stage vehicle and the payload and between the Centaur vehicle and the booster vehicle. The system is functionally capable of jettisoning the insulation panels and nose cone, separating the Centaur from the booster vehicle, and separating the Surveyor spacecraft from the vehicle. Refer to Figures 3-7 and 3-8 for structural configuration.

CENTAUR CONFIGURATION

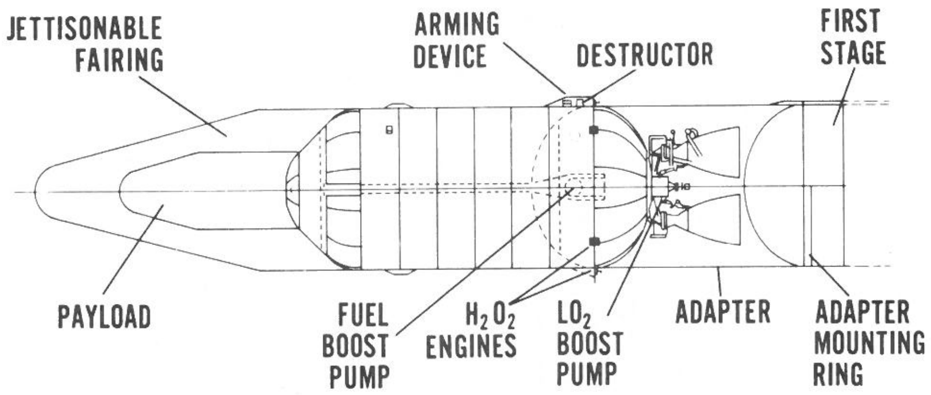

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Figure 3-7. General Centaur Configuration

3.2.2 GENERAL DESCRIPTION AND FUNCTION. The structural system includes the following:

a. Tank: A tank structure to contain the main propellants (liquid hydrogen and liquid oxygen), establish primary structural integrity for the Centaur vehicle, and provide support for all second stage airborne systems and components

b. Tank Insulation:

(1) Forward bulkhead insulation to insulate the electronics compartment from the liquid hydrogen tank temperatures

(2) Insulation panels to insulate the cylindrical tank section during ground operations and ascent through the earth's atmosphere and to limit LH_2 boiloff

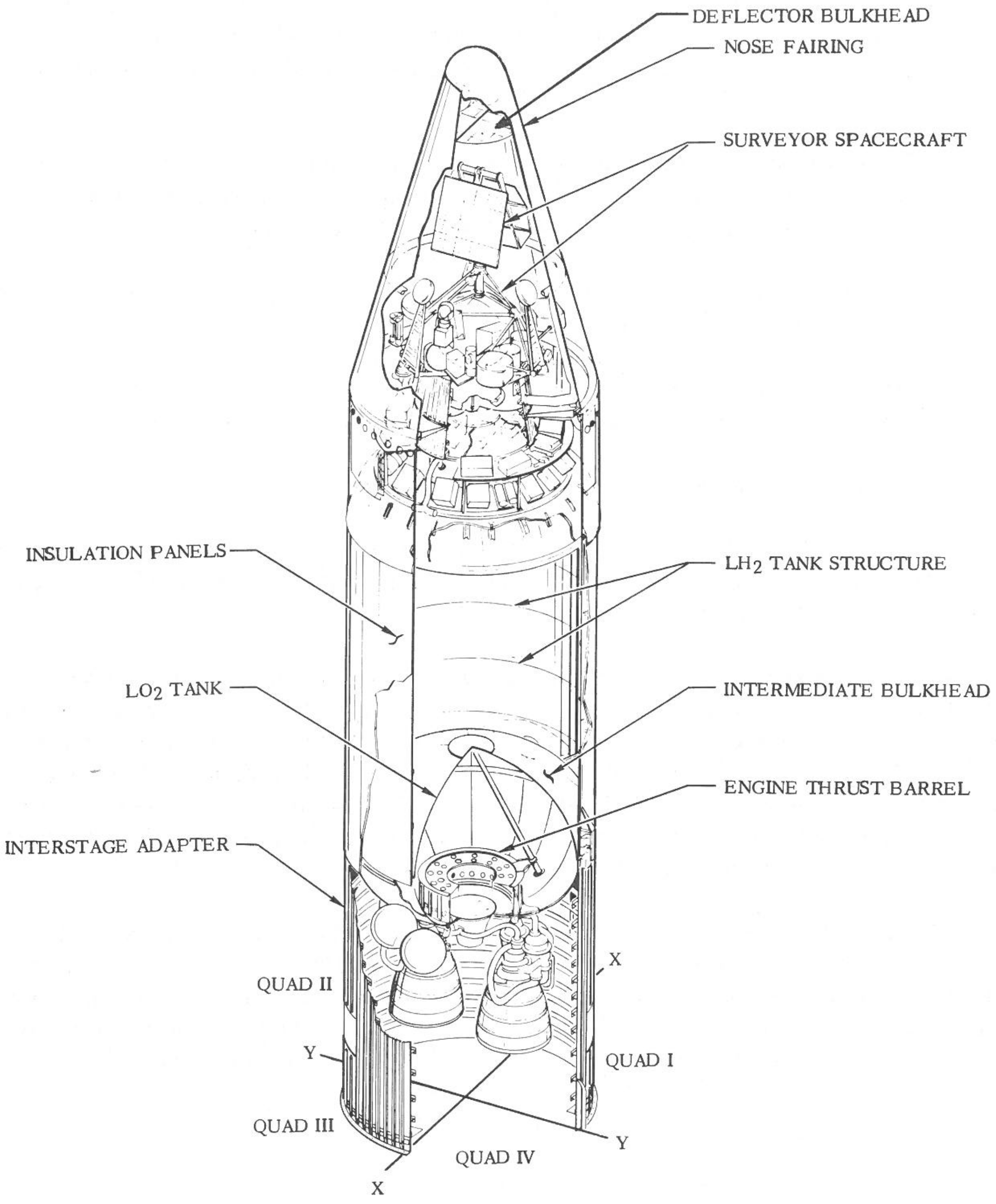

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Figure 3-8. Structural System Configuration